

ABC, Inc.



DOCKET FILE COPY ORIGINAL

Sam Antar
Vice President
Law & Regulation
Legal

July 30, 1999

RECEIVED

AUG 2 1999

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Hand Deliver

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, DC 20554

Re: MM Docket No. 99-25 -- In the Matter of Creation of a Low Power Radio Service

Dear Ms. Salas:

We are transmitting herewith for filing with the Commission an original and four copies of Comments of The Walt Disney Company on behalf of its subsidiary ABC, Inc. in MM Docket No. 99-25.

If there are any questions in connection with the foregoing, please contact the undersigned.

Sincerely,

Sam Antar

SA/akp
Enclosures

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

RECEIVED

AUG 2 1999

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Creation of a Low Power) MM Docket No. 99-25
Radio Service)

To: The Commission

Comments of The Walt Disney Company ("ABC")

The Walt Disney Company, on behalf of its subsidiary ABC, Inc. ("ABC"), hereby submits its Comments on the Notice of Proposed Rule Making ("NPRM") in the above-captioned proceeding.

ABC, Inc. is the owner of 16 FM stations (as well as 25 AM stations) and is committed to maintaining the viability of free, universal full service radio.

I. Introduction

Our comments deal with two key issues raised by the NPRM -- first, whether existing second and third adjacent channel protection standards should be eliminated in order to free up spectrum that would be used to create an LP1000 service; and second, whether establishing a secondary LP100 service is merited when one weighs the public benefits and detriments that would flow from such action.

In order to develop a factual record to help answer these questions, ABC commissioned a study from the Dataworld company covering several of our radio station markets. The study is described in the attached Engineering Statement of Bert Goldman, Vice President Engineering-ABC Radio Division, and its findings will also be referred to below.

The conclusions we have reached based on the Dataworld study and our internal analysis are that:

1. The Commission's proposal to eliminate second and third adjacent channel protection standards should be rejected because it would cause new interference that will severely erode the service areas of full service FM stations. Moreover, the new LP 1000's that would be created would themselves be subject to interference from full power FM stations that would substantially limit their effective service areas. The end result would be many times more interference created than service created.

2. A secondary LP100 service is undesirable for two reasons: first, because it would be difficult or impossible to establish a procedural and enforcement framework that would adequately protect FM broadcasters from interference; and second, because LP100 stations would create only marginal new radio listenership given the overriding levels of interference they would receive from full service stations.

As set forth in full in the Engineering Statement, ABC commissioned Dataworld to study what the interference effects would be on ABC's FM stations in four markets -- Minneapolis, Atlanta, Washington, DC and Dallas -- were the FCC to eliminate third and second adjacent channel protections and allocate LP1000 and LP100 stations in those markets. Dataworld's interference calculations were based on the NAB receiver tests, which the NAB is submitting with its comments

in this proceeding, covering four types of receivers -- clock, portable, home stereo and FCC compliant. In one of our markets, Dallas, Dataworld found two potential LP1000 allocations and nine potential LP100 allocations. While those allocations would be adjacent to FM stations in Dallas owned by other companies, no further analysis was performed since none would be adjacent to ABC stations. In Washington, DC, no potential LP1000 allocations and four potential LP100 allocations were found, two of which would be adjacent to ABC's stations. In Minneapolis, Dataworld found three potential LP1000 allocations, two of which would be adjacent to ABC stations, and 16 potential LP100 allocations, five of which would be adjacent to ABC stations. In Atlanta, 11 potential LP1000 allocations were found, four of which would be adjacent to ABC stations, as well as 37 potential LP100 allocations, 12 of which would be adjacent to ABC stations.

We discuss the results of the Dataworld interference study in the sections on Proposed LP1000 Service (Section II) and Proposed LP100 Service (Section III) which follow:

II. Proposed LP 1000 Service

The interference effects of potential LP1000 allocations on ABC station KQRS-FM in Minneapolis are discussed on pages 6-7 of the Engineering Statement and shown on maps 1-A, 2 and 3 which are appended. Map 1-A graphically plots the areas of interference to KQRS-FM for the three measured types of radios. One of the potential LP1000 stations, LP1000 92.9 #1, which could be allocated to downtown St. Paul, would interfere with KQRS-FM in the heart of its service area. As the Engineering Statement is careful to point out, elimination of third and second adjacent channel protection produces effects running both ways -- interference to existing stations and interference from existing stations. In the case of LP1000 92.9 #1, the new station would theoretically be capable of serving over 730,000 people if the protections were in place. However,

when the protections are eliminated and the resulting interference is taken into account, almost none of these people could ever hear the station on anything other than better automobile receivers. Indeed, as shown on map 3, the only area capable of reception is the very small white spot surrounding the cross in downtown St. Paul. This is almost exactly the area which would lose service from KQRS-FM. The net result would be that an allocation of LP1000 92.9 #1 would create 31 times more interference for portable radios than service created.

Similarly, in the case of Atlanta, discussed in the Engineering Statement on pages 8-9, the potential LP1000 stations would result in many times more interference than service. Map 5-A shows the areas of interference that can be expected to ABC station WKHX-FM from potential LP1000's stations. One of those stations, LP1000 101.1 #1, near Roswell, Georgia, a suburb of Atlanta, is in the heart of WKHX-FM's service area. As in the case of Minneapolis, WKHX-FM would not only receive interference from LP1000 stations, but would cause interference to those stations which would substantially reduce their potential service area. As the Engineering Statement makes clear, of over 370,000 potential listeners to the new LP1000 stations, all but 20,000 of portable receiver listeners would receive interference. As in Minneapolis, the net result would be that allocation of LP1000 stations to Atlanta would create 31 times more interference than service created.

Atlanta is the 12th ranked radio market while Minneapolis is ranked 18th (Arbitron Radio Market Population Rankings, spring 1999, persons 12+, MSA). Interference by LP1000 stations to full service FM stations can be expected to be most severe in markets of this size. In larger markets, the number of cases of interference would be fewer based on the plain fact that fewer LP1000's could be allocated. (To the extent LP1000's could be allocated, the interference they would cause

to FM stations would be equally severe). Small markets would not be as severely impacted assuming there are few enough stations spread far enough apart. Indeed, it should not be necessary to eliminate second and third adjacent channel protections to make room to allocate LP1000's in most small markets.

In the NPRM, the FCC characterizes interference as a pivotal issue in determining the feasibility of LP1000 service. In public statements since the issuance of the NPRM, FCC officials have consistently supported the principle that the technical integrity of FM radio must be preserved. Based on the interference data submitted herein and other data that will be submitted by the NAB and by other commenters in this proceeding, the FCC should not eliminate third and second adjacent channel protection in order to authorize an LP1000 service.

III. Proposed LP100 Service

At first blush, a secondary LP100 service would not appear to raise the same crucial issue of interference that would jeopardize full service FM broadcasters as a primary LP1000 service. However, when one examines more closely what would be required by way of procedural and enforcement mechanisms to insure that LP100 stations remain truly secondary, interference again looms very large.

At minimum, interference protection must mean that the Commission place the burden on proposed new LP100 stations to demonstrate that their facilities will not interfere with existing FM stations before they are permitted to commence operation. Even if such a pre-start-up interference protection rule is adopted for LP100 stations, FCC involvement would not end here. An additional procedural mechanism will be needed to allow broadcasters who wish to relocate or upgrade their facilities to displace previously authorized LP100 stations. At the present time and for the next

several years, as the broadcast industry transitions to DTV, FM stations are confronting and will continue to confront stiff competition from DTV stations for antenna space at their existing locations. As a result, many will be forced to relocate. And, on a purely practical level, even if displacement procedures that are ideal for broadcasters are adopted, displacement of existing LP100 operators is likely in many cases to lead to disputes that will require Commission adjudication.¹ The prospect of adjudication initiated by LP100 operators, with its attendant delays and expense, could deter broadcasters from making upgrades that would provide added radio service to new listeners that would clearly be in the public interest, as well as hinder existing FM broadcasters displaced by DTV stations during the transition to digital television.

From a broadcaster perspective, an even more significant drawback to Commission authorization of a new LP100 service is the plain fact that, at current appropriation levels, the Commission's field enforcement effort, which has been subject to significant cutbacks in recent years, is not up to the task of monitoring and policing an LP100 service to ensure that licensees operate within authorized limits so as not to cause interference to full service broadcasters. A recent article by Dane Erickson, SBE FCC Liaison Committee Chairman, in The Signal, for May/June 1999, highlights this point. The word Mr. Erickson uses to describe the Commission's Compliance & Information Bureau is that it is "eviscerated." An LP100 service could entail adding hundreds of transmitters and small towers throughout a given market. Inspecting such facilities, responding to complaints, determining when violations have occurred and ensuring that remedial measures are promptly taken would be a daunting task. The Commission will face a host of difficult enforcement

¹ Recent experience in DTV is instructive. Secondary LPTV operators, who would be displaced by primary DTV assignments, have mounted a huge effort, including a legislative effort, to forestall that result.

issues including the following:

- How will stations be inspected and how often?
- When inspected, how will an inspector know what the actual ERP of the station is?

It is easy to tell the difference between a 10,000 watt and a 20,000 watt transmitter.

It is not so easy to determine the ERP of a 100 watt transmitter with a 1,000 watt linear amplifier hidden in the attic. The Commission is well aware of the rampant disregard for emission limits in the 27 MHz citizens band. This could easily take place for LP100 stations.
- There should also be type certification for antennas. Gain can be easily hidden here.
- Once found to be in violation, how will the Commission ensure quick enforcement, or indeed, enforcement at all? Does the Commission believe that its enforcement record against pirate operations provides any assurance that LP100 enforcement will be effective?

Against this backdrop of the drawbacks to the proposed LP100 service, the Commission must weigh the benefits to the public interest in authorizing such a service. We believe that the “new service” side of the equation falls far short of overcoming the potential harm to full service broadcasters because an LP100 service would create at best only marginal pockets of new radio listenership. Dataworld's study of ABC's FM stations in Minneapolis and Atlanta, based on the four receiver types used in the NAB's receiver studies, demonstrates that ABC's full service stations would cause crippling interference to the adjacent LP100 stations that could be allocated in those markets if second and third adjacent channel protections are ignored.


The Engineering Statement, on page 7, shows that in Minneapolis over half the listeners within the theoretical service areas of the adjacent LP100's that could be allocated would be unable to receive service. For four of the five LP100 stations that could be allocated, fewer than 10% of listeners on portable radios would be able to receive the signal. Similarly, in Atlanta, as shown on page 9, fewer than half of the portable radio listeners would be able to receive service from eight of the 12 LP100 stations adjacent to ABC stations that could be allocated. We submit that these results demonstrate that the public detriment far outweighs the public gain and that the proposed LP100 service should not be authorized.

IV. Conclusion

For the reasons stated above, as substantiated by the Dataworld study described in the attached Engineering Statement, the Commission should not adopt the proposals set forth in the NPRM to authorize an LP1000 or an LP100 service.

Respectfully submitted,

By: _____


Sam Antar, Esq.
Vice President, Law & Regulation

ABC, Inc.
77 West 66 Street
New York, NY 10023

Diane Hofbauer Davidson, Esq.
Director, Government Relations

The Walt Disney Company
1150 17 Street, N.W., Suite 400
Washington, DC 20036

Bert S. Goldman
Vice President, Engineering
ABC Radio Division

**Engineering Statement of
Bertram S. Goldman
Vice President of Engineering, Radio Division, ABC, Inc.**

For filing with the comments of the Walt Disney Company ("ABC")

RE: MM Docket No. 99-25

Regarding the FCC proposal that LPFM stations not be subject to certain technical rules currently applied to other classes of radio service. In particular, second and third adjacent channel interference.

The Commission's proposal that second or third adjacent channel protection can be abandoned is predicated in part on the belief that receivers have improved over the years. This assumption is simply not supported in fact. Pressures on receiver manufacturers to reduce the size and cost of their products has in many cases reduced receiver adjacent channel rejection to far less than that which is presently anticipated by the rules. It should also be noted that tightening the receiver front end to sufficiently protect it from second and third adjacent interference will usually increase the distortion in the receiver and cause poorer quality audio to be demodulated.

The National Association of Broadcasters has commissioned receiver tests which demonstrate the fact that second and third adjacent channel interference is a real problem for many receivers made today as well as the hundreds of millions of receivers made in previous years and still in use today.

It is not our intention here to repeat the findings of the NAB tests, but rather to expand upon their data and reference that data to real world situations which would affect ABC radio stations in three markets and would also affect the LPFM's which, according to the FCC allocation program, could be assigned in those markets if second or third adjacent channel interference criteria were eliminated.

ABC contracted the Dataworld company to determine potential allocation conditions for four markets in which ABC owns and operates radio stations. Those markets tested are Minneapolis, Atlanta, Washington, DC and Dallas. Following are the market results of the Dataworld study. In the following chart, both LP100's and LP1000's are shown. In many cases the FCC program allocates LP100's and LP1000's on the same frequency. In this case LP100's and LP1000's would be mutually exclusive. No attempt has been made here to choose one allocation over another since it is not known how the Commission intends to handle these situations. Therefore, the numbers shown here are for one service without regard to the other, (e.g. LP100's without regard to potential LP1000's).

Potential LPFM allocations, select ABC markets

	Potential LP100's	Potential LP1000's
Atlanta	37	11
Minneapolis	16	3
Dallas	9	2
Washington, DC	4	0

Of the above potential stations, several would interfere with stations owned by ABC. Those stations are as follows:

Atlanta ABC stations:

WKHX-FM 101.5
WYAY 106.7

LP100 Adjacencies to WKHX-FM 101.5

Designation	Freq.	HAAT	HAMSL PWR.	Coord.
LP100.9 #1	100.9 MHz	30.0 m	305.4 m 0.100 kW	N 33° 47' 56.0" W 84° 27' 17.0"
LP100.9 #2	100.9 MHz	30.0 m	334.2 m 0.100 kW	N 33° 59' 56.0" W 84° 21' 17.0"
LP100.9 #3	100.9 MHz	30.0 m	299.7 m 0.100 kW	N 33° 37' 56.0" W 84° 37' 17.0"
LP100.9 #4	100.9 MHz	30.0 m	272.1 m 0.100 kW	N 33° 36' 56.0" W 84° 10' 17.0"
LP101.1 #1	101.1 MHz	30.0 m	328.4 m 0.100 kW	N 33° 55' 56.0" W 84° 29' 17.0"
LP101.1 #2	101.1 MHz	30.0 m	307.0 m 0.100 kW	N 33° 43' 56.0" W 84° 19' 17.0"
LP101.9 #1	101.9 MHz	30.0 m	302.7 m 0.100 kW	N 33° 41' 56.0" W 84° 18' 17.0"
LP101.9 #2	101.9 MHz	30.0 m	320.4 m 0.100 kW	N 33° 53' 56.0" W 84° 25' 17.0"
LP101.9 #3	101.9 MHz	30.0 m	275.5 m 0.100 kW	N 33° 29' 56.0" W 84° 12' 17.0"
LP101.9 #4	101.9 MHz	30.0 m	304.3 m 0.100 kW	N 33° 31' 56.0" W 84° 28' 17.0"
LP102.1 #1	102.1 MHz	30.0 m	307.8 m 0.100 kW	N 33° 47' 56.0" W 84° 33' 17.0"
LP102.1 #2	102.1 MHz	30.0 m	298.0 m 0.100 kW	N 33° 34' 56.0" W 84° 37' 17.0"

LP1000 Adjacencies to WKHX-FM 101.5

Designation	Freq.	HAAT	HAMSL PWR.	Coord.
LP100.9 #1	100.9 MHz	60.0 m	331.4 m 1.000 kW	N 33° 41' 56.0" W 84° 34' 17.0"
LP101.1 #1	101.1 MHz	60.0 m	364.2 m 1.000 kW	N 33° 59' 56.0" W 84° 26' 17.0"
LP101.9 #1	101.9 MHz	60.0 m	337.7 m 1.000 kW	N 33° 45' 56.0" W 84° 14' 17.0"
LP102.1 #1	102.1 MHz	60.0 m	331.3 m 1.000 kW	N 33° 41' 56.0" W 84° 36' 17.0"

No other ABC Adjacencies found

Minneapolis ABC Stations:

KQRS-FM 92.5
KXXR 93.7
KZNR 105.1
KZNT 105.3
KZNZ 105.7

LP100 Adjacencies to KQRS-FM

<u>Designation</u>	<u>Freq.</u>	<u>HAAT</u>	<u>HAMSL PWR.</u>	<u>Coord.</u>
LP91.9 #1	91.9 MHz	30.0 m	300.1 m 0.100 kW	N 45° 02' 48.0" W 93° 14' 49.0"
LP91.9 #2	91.9 MHz	30.0 m	292.4 m 0.100 kW	N 44° 50' 48.0" W 93° 20' 49.0"
LP91.9 #3	91.9 MHz	30.0 m	311.0 m 0.100 kW	N 45° 10' 48.0" W 93° 00' 49.0"
LP92.1 #1	92.1 MHz	30.0 m	307.9 m 0.100 kW	N 45° 09' 48.0" W 93° 28' 49.0"
LP92.9 #1	92.9 MHz	30.0 m	299.1 m 0.100 kW	N 44° 57' 48.0" W 93° 08' 49.0"

LP1000 Adjacencies to KQRS-FM

<u>Designation</u>	<u>Freq.</u>	<u>HAAT</u>	<u>HAMSL PWR.</u>	<u>Coord.</u>
LP91.9 #1	91.9 MHz	60.0 m	331.3 m 1.000 kW	N 45° 10' 48.0" W 93° 13' 49.0"
LP92.9 #1	92.9 MHz	60.0 m	330.1 m 1.000 kW	N 44° 55' 48.0" W 93° 04' 49.0"

No other ABC adjacencies found

Dallas ABC FM Stations:

KSCS 96.3
KMEO 96.7

No Adjacencies to ABC Stations found

Washington ABC FM Stations

WJZW 105.9
WRQX 107.3

LP100 Adjacencies to WJZW

<u>Designation</u>	<u>Freq.</u>	<u>HAAT</u>	<u>HAMSL PWR.</u>	<u>Coord.</u>
LP105.5 #1	105.5 MHz	30.0 m	62.3 m 0.100 kW	N 38° 40' 42.0" W 77° 04' 12.0"
LP106.3 #1	106.3 MHz	30.0 m	63.1 m 0.100 kW	N 38° 41' 42.0" W 77° 10' 12.0"

No potential LP1000 Stations allocated to Washington, DC.

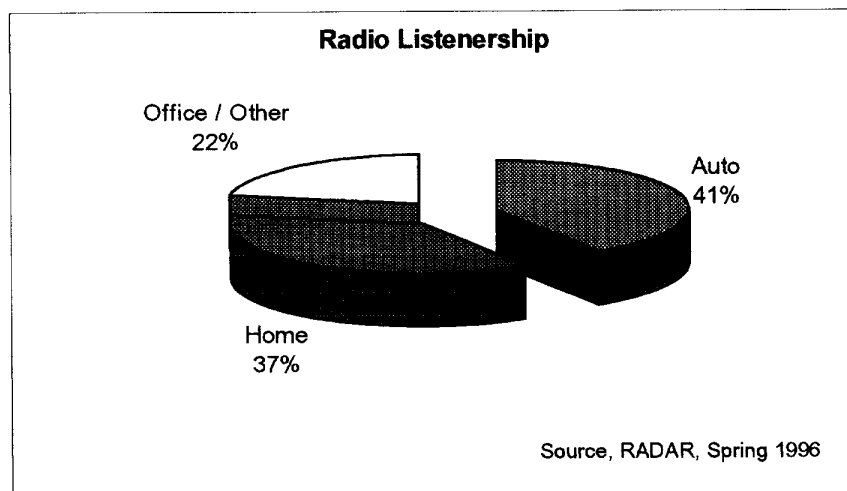
Receiver Based Interference Study

Based upon the above allocation environment, ABC has prepared interference calculations based upon four different receiver types and for three stations that would potentially be interfered with within their protected contours, WKHX-FM Atlanta, KQRS-FM Minneapolis, and WJZW Washington DC. The receiver types are based upon those typed in the NAB receiver tests. They are:

- Clock, personal radios measured d/u ratios -15.8dB second adj. -27dB third adj.
- Portable radios measured d/u ratios -10.0dB second adj. -17dB third adj.
- Home stereo radios measured d/u ratios -21.8dB second adj. -22dB third adj.
- FCC compliant radios theoretical d/u ratios -40 dB second and third adj.

We have chosen not to show the interference plots for the worst radios tested which show interference at +3.2dB second and -10dB third adjacent. FCC compliant radios would include many, but by no means all receivers designed for automobile use.

In order to calculate the amount of listenership lost due to interference on a particular type of receiver, one must first determine what the listening pattern of the public is. The study shown below indicates that 41% of the listening is done in the automobile, 37% is done at home and 22% of listening is done at work or other places. A graph showing these listening patterns is shown below.

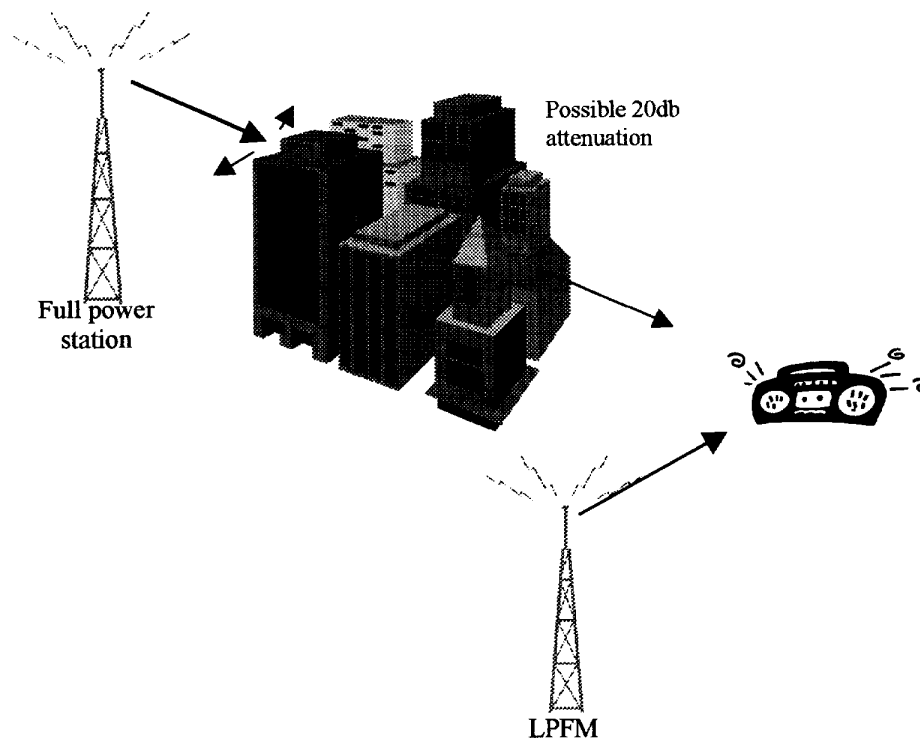


Although automobile radios generally have better filtering than other types of radios, the fact is that they must operate in environments which have dynamically variable signal levels. A receiver operating in this environment, we believe, must operate with approximately 20db better filter performance than a similar stationary receiver in order to obtain similar reception capabilities. This is due to the effects of multipath and local shielding in a mobile environment. However, the increased distortion which is caused by aggressive filtering is masked by the significantly higher noise environment in the car as

opposed to the home with a relatively quiet noise environment. Therefore, if a receiver is moving through a mobile environment and has been tested with a d/u ratio of -45db d/u , a degradation of 20db would cause the receiver to operate similar to that of a receiver with -25db d/u ratio. It would be the nature of this type of interference to vary depending upon the instantaneous position of the receiver in the mobile environment.

A pictorial representation of this effect is shown below. This has not been factored into the following study.

EFFECT OF MULTIPATH AND SHIELDING ON LPFM PROPAGATION



TABULATION OF INTERFERENCE, MINNEAPOLIS:

A. INTERFERENCE TO KQRS-FM FROM LP1000's

The maps in appendix A show graphically the areas of interference expected to KQRS-FM. Map 1A shows the interference expected to KQRS-FM by virtue of the LP1000's that could be allocated to Minneapolis if the second or third adjacent channel separations are eliminated. Although little interference is anticipated based upon the FCC -40 d/u ratio, there is interference shown to KQRS-FM on the three measured types of radios (we are not including the worst radios). Those areas of interference are shown on the maps. Below we will look at how one of the 2 potential LP1000's effects KQRS-FM in a localized critical listening area for KQRS-FM.

The FCC allocation program places a potential LP1000 in downtown St. Paul, MN. The specific station in question is shown below as italicized LP1000 92.9 #1. As can be seen graphically in Map 2, this station would cause interference to approximately 12,000 potential listeners to KQRS-FM. That number does not include people who may commute into the area during the day. We believe that this number of potentially interfered-with listeners could be much higher, at least double the 12,000 amount, especially since much of this area's listeners would be using clock or portable radios to listen to KQRS-FM in their workplace. Thus, there is a daytime listening at work population and a morning or night time home listening population.

B. INTERFERENCE TO LPFM1000's FROM KQRS-FM

The chart listed below indicates only those LP1000 stations which would be allocated to Minneapolis AND would interfere with ABC's station, KQRS-FM. As seen in the chart there is substantial interference shown to the LP1000 stations from KQRS-FM. Also in the chart is a tabulation of the percentage loss of coverage due to interference on specified radios. The number in parenthesis shows the number of listeners within the LPFM's 60dbu contour who would likely receive interference on the specified radio:

Potential LP1000 allocations in Minneapolis, Mn.

	Total pop 60dbu contour	FCC (Pop. Lost)	Clock (Pop. Lost)	Portable (Pop. Lost)	Home (Pop. Lost)
LP1000 91.9 #1	274,252	2.5% (6,856)	43.1% (118,203)	70.0% (191,976)	55.9% (153,307)
LP1000 92.9 #1	730,869	21.2% (154,944)	73.8% (539,381)	95.3% (696,518)	61.1% (446,561)

In the case of LP1000 92.9 #1, the very possible scenario is that there becomes an almost negligible increase in service at a huge sacrifice in interference. In this specific case, shown in Map 2, on portable radios, 11,709 KQRS-FM listeners could receive interference from this LPFM 1000 station. The LP1000 station itself would expect to be capable of covering 730,869 people, however, as shown graphically on Map 3, almost none of the 730,869 people could ever hear the station on anything other than better automobile receivers.

On Map 3, the only area capable of reception on all radios is the very small white spot surrounding the cross in downtown St. Paul. This is almost exactly the area which would *lose* service from KQRS-FM. The remainder of the 60dbu contour would be increasingly susceptible to interference from KQRS-FM. Of the potential LP1000 listeners, 95.3% or 696,518 would receive interference on portable radios. This leaves only 34,350 potential listeners, and of these listeners, 11,709 could lose service from KQRS-FM. That leaves 708,227 people with interference and as few as 22,641 potential listeners. This means that for portable radios, there would be over 31 times more interference created than service created. This is clearly a totally inefficient allocation model.

C. INTERFERENCE FROM / TO LP100's

Map 1B shows expected interference areas to KQRS-FM from LP100's if second or third adjacent separations are eliminated. Other stations in Minneapolis that could be interfered with are not considered in this study. As stated previously, the allocation potentials for LP1000 and LP100 stations are treated without regard to each other.

Although there are clearly two or three LP100's which could interfere with KQRS-FM, the greater concern should be directed at the interference that the LP100 would receive from KQRS-FM. Below is a chart showing how much interference could be expected on various receivers and how much interference could be generated.

	Potential LP100 allocations in Minneapolis, Mn.				
	Total pop 60dbu contour	FCC (Pop. Lost)	Clock (Pop. Lost)	Portable (Pop. Lost)	Home (Pop. Lost)
<i>LP100 91.9 #1</i>	<i>199,699</i>	<i>22.5% (44,932)</i>	<i>93.2% (186,119)</i>	<i>95.8% (191,311)</i>	<i>94.8% (189,315)</i>
<i>LP100 91.9 #2</i>	<i>133,403</i>			<i>31.9% (42,556)</i>	<i>20.7% (27,614)</i>
<i>LP100 91.9 #3</i>	<i>5,828</i>		<i>70.4% (4,103)</i>	<i>94.7% (5,519)</i>	<i>93.0% (5,420)</i>
<i>LP100 92.1 #1</i>	<i>14,834</i>		<i>88.0% (13,053)</i>	<i>92.8% (13,765)</i>	<i>1.6% (237)</i>
<i>LP100 92.9 #1</i>	<i>965</i>	<i>21.4% (206)</i>	<i>96.7% (933)</i>	<i>99.2% (957)</i>	<i>94.7% (914)</i>

The above chart shows that huge amounts of interference can be expected to LP100 stations surrounding KQRS-FM's frequency. In the above allocations, generally far more interference is created than service area for the receivers shown. For four of the above five LP100 stations, less than 10% of the listeners on portable radios will be able to hear them. Interference is so prevalent on most allocations that even when factoring in the 41% of listening done on automobile radios which are more resistant to interference, still more than half of the listeners receive interference instead of service. We believe that this is contrary to the FCC goals of increasing service, when it appears that all that will be created is interference generators masquerading as radio stations.

Map 4 shows graphically the area of interference for one of the LP100 stations, the italicized LP100 91.9 #1 shown above. This station, as in the example above is nearly completely encompassed by interference. Again, the barely visible white area in the center of the coverage area is the only area where all radios could receive the station. Over 93% of the non-automotive receivers studied would have interference over the *entire* 60dbu listening area of the station. Even factoring in receivers which are less susceptible to interference, over 57% of the listeners would receive interference throughout the coverage area.

TABULATION OF INTERFERENCE, ATLANTA

A. INTERFERENCE TO WKHX-FM FROM LP1000'S

Map 5A in appendix A shows graphically the areas of interference expected to WKHX-FM from potential LP1000 stations if 2nd or 3rd adjacent channel interference standards are eliminated. As in the Minneapolis maps above, these maps show graphically where interference is expected to be received by WKHX-FM.

In this case, the worst offender is an LPFM 1000 at 101.1 MHz near Roswell, Georgia, a suburb of Atlanta and one of the most important communities to WKHX-FM within its protected contour. The station is shown below as the italicized LP1000 101.1 #1. In this community, on portable radios, 9,452 WKHX-FM listeners may receive interference from the LPFM which could be allocated to this community. Again, due to this station's proximity to businesses and a transient public, it would be expected that at least double the 9,452 affected listeners shown would experience problems due to the fact that daytime population in this area is quite different from night time population.

B. INTERFERENCE TO LP1000'S FROM WKHX-FM

Below is a tabulation of the percentage loss of coverage due to interference on specified radios. These numbers shown are only for those stations interfered with by WKHX-FM, although there may be other contributions to the interference. The number in parenthesis shows the number of listeners within the LPFM's 60dbu contour who would likely receive interference on the specified radio:

Potential LP1000 allocations in Atlanta, Ga.					
	Total pop	FCC	Clock	Portable	Home
	60dbu contour	(Pop. Lost)	(Pop. Lost)	(Pop. Lost)	(Pop. Lost)
LP1000 100.9 #1	221,814	13.6%*(30,167)	55.7%*(123,550)	85.5%*(189,651)	77.1%*(171,018)
LP1000 101.1 #1	371,590	73.8%*(274,233)	92.2%*(342,606)	94.4%*(350,781)	85.5%*(317,709)
LP1000 101.9 #1	512,916	24.2% (124,126)	89.3% (458,034)	94.3% (483,680)	78.7% (403,665)
LP1000 102.1 #1	173,991		18.5% (32,188)	71.5% (173,991)	53.5% (93,085)

***Interference shown includes interference which would be received from existing translator W264AE and W265AV**

Interference from WKHX-FM at 101.5 (second adjacent) and W265AV at 100.9 (1st adjacent) to a potential LP1000 at 101.1mhz is shown as Map 6 and, as can be graphically seen, would cause interference over 94.4% of the LP1000's potential listening area depending upon the type of receiver used. This means that of 371,590 potential listeners, 350,781 of portable receiver listeners would receive interference. That means there would be only 20,809 potential listeners on portable radios and of those, 9,452 WKHX-FM listeners could receive interference. That leaves less than 12,000 listeners who would receive the station on portable radios and not lose service from WKHX-FM. As in the Minneapolis case above that means 31 times more interference is created than service.

As in the Minneapolis study above, far more interference is shown to be generated than new potential coverage would be created. ABC believes that this interference is not in the public interest and is contrary to the intent or mission of the FCC.

In a similar way to Map 6, Map 7 shows interference to LP1000 101.9 #1. Here again, far more interference would be created than service.

C. INTERFERENCE FROM / TO LP100'S

Map 5B shows potential areas of interference to WKHX-FM from LP100 stations. In Atlanta it appears that there would be more interference to WKHX-FM from LP100's than KQRS-FM experiences above. Most interference would occur outside the Atlanta beltway with two particularly large interference areas shown to the South of Atlanta.

Below is a chart indicting the potential population coverage and loss of coverage due to interference from WKHX-FM to the LP100's for the 2nd and 3rd adjacent channel stations that the FCC proposes to allocate:

Potential LP100 allocations in Atlanta, Ga.					
	Total pop 60dbu contour	FCC (Pop. Lost)	Clock (Pop. Lost)	Portable (Pop. Lost)	Home (Pop. Lost)
LP100 100.9 #1	72,887	6.6% (4,810)	49.3% (35,933)	81.3% (59,257)	61.7% (44,971)
LP100 100.9 #2	73,960			7.9% (5,842)	
LP100 100.9 #3	4,783			25.5% (1,220)	
LP100 100.9 #4	13,486			32% (4,316)	10.0% (1,349)
<i>LP100 101.1 #1</i>	<i>101,190</i>		64.7% (65,470)	76.8% (77,714)	50.7% (51,303)
LP100 101.1 #2	168,330	21.1% (35,518)	95.1% (160,082)	100% (168,330)	75.8% (127,594)
LP100 101.9 #1	116,567	7.7% (8,976)	76.6% (89,290)	95.3% (111,088)	43.5% (50,707)
LP100 101.9 #2	81,765		89.5% (73,180)	98.1% (80,211)	67.5% (55,191)
LP100 101.9 #3	13,636		19.1% (2,604)	53.8% (7,336)	
LP100 101.9 #4	42,579		11.7% (4,982)	52.8% (22,482)	
LP100 102.1 #1	48,734		16.3% (7,944)	57.6% (28,071)	48.9% (23,831)
LP100 102.1 #2	7,822			14.0% (1,095)	

A map showing the interference to one of the LP100 stations that could be allocated to Atlanta is shown as Map 8. On the chart it is noted as the italicized LP100 101.1 #1. Again, interference will be found over nearly its entire coverage area with only a small amount of coverage available on many radios in the very center of the 60dbu contour. In this case, the population density increases during the day in the area where the most interference would exist, thus further exacerbating the problem. Since the interference problem appears to be cumulative as one approaches the outside of the 60dbu coverage area, there may be less than 15,000 available listeners in an area which could otherwise cover over 100,000.

ABC believes that allocation of LP100's which have substantially all of their coverage area consumed by adjacent channel interference is an inefficient use of spectrum and should not be allowed.

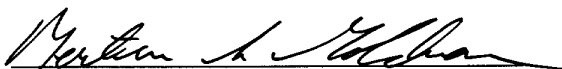
TABULATION OF INTERFERENCE, WASHINGTON, DC

Map 9 in appendix A shows graphically the areas of interference that can be expected to WJZW. Although there are very few LPFM stations that could be allocated to Washington DC even without second or third adjacent interference protection, WJZW would be one of the stations receiving interference. Although WRQX, the other ABC owned FM station in Washington, would not be subject to additional interference from proposed LPFMs, it is already victim to third-adjacent channel interference from short-spaced full service station WJFK-FM, Manassas VA, in the vicinity of the Manassas station's site near the highly congested intersection of Interstate 495 and Interstate 66 in Fairfax VA. This has been a problem since relocation (under BPH-820816BJ and BMPH-830929AG) of the Manassas station's site to this populous area from a more sparsely populated area at a greater distance from WRQX, worsening an already short-spacing as permitted by the Rules in effect at the time. A review of filings made in this case between October 1982 and May 1984, and especially a review of anecdotal listening observations made and filed in May 1984, may be of particular interest in this proceeding, as they show that the problem of third adjacent channel interference to differing receivers is not new.

General Conclusion:

In this engineering report, ABC has studied the effect of interference to and from LPFM stations immediately affecting the operation of its stations in several of its radio markets. The study shows that interference far in excess of what the FCC expects would occur will in fact occur if these stations are allocated. Further, if allocated ABC believes that the public interest would not be served either from the standpoint of the listener or the LPFM licensee who will expect to cover a much larger area than he will in fact be able to adequately cover. ABC believes that the elimination of second and third adjacent channel protection would increase interference, not reduce it, and the resulting increase in potential audience reached would not even come close to offsetting the listeners interfered with. Accordingly, the proposal for elimination of 2nd and 3rd channel adjacency protection for any LPFM allocations should be abandoned.

Respectfully Submitted



Bertram S. Goldman
VP Engineering, Radio Div. ABC Radio

APPENDIX A





Minneapolis, MN

Prepared
by
dataworld
for
ABC

MINNESOTA

LPFM 1000 Interference

Existing FCC Ratios

-  Home/Stereo Radio
-  Clock & Personal Radio
-  Portable Radio
-  Worst Radio

+ LP 1000 Transmitter Sites

0 2 4 6 8 10 12 Kilometers

Minneapolis, MN



MINNESOTA

LPFM 100 Interference

Existing FCC Ratios

- Home/Stereo Radio
- Clock & Personal Radio
- Portable Radio
- Worst Radio

+ LP 100 Transmitter Sites

0 2 4 6 8 10 12 Kilometers

Interference To KQRS From LP100'S

MAP 2

Minneapolis, MN

Prepared by



for
ABC

RAMSEY
St. Paul

DAKOTA

LPFM 1000 Interference

- LPFM Allocation Area
- Existing FCC Ratios
- Home/Stereo Radio
- Clock & Personal Radio
- Portable Radio
- Worst Radio

+ LP 1000 Transmitter Sites

0 3 Kilometers

Copyright © 1999, Dataworld, Inc.

Interference To KQRS

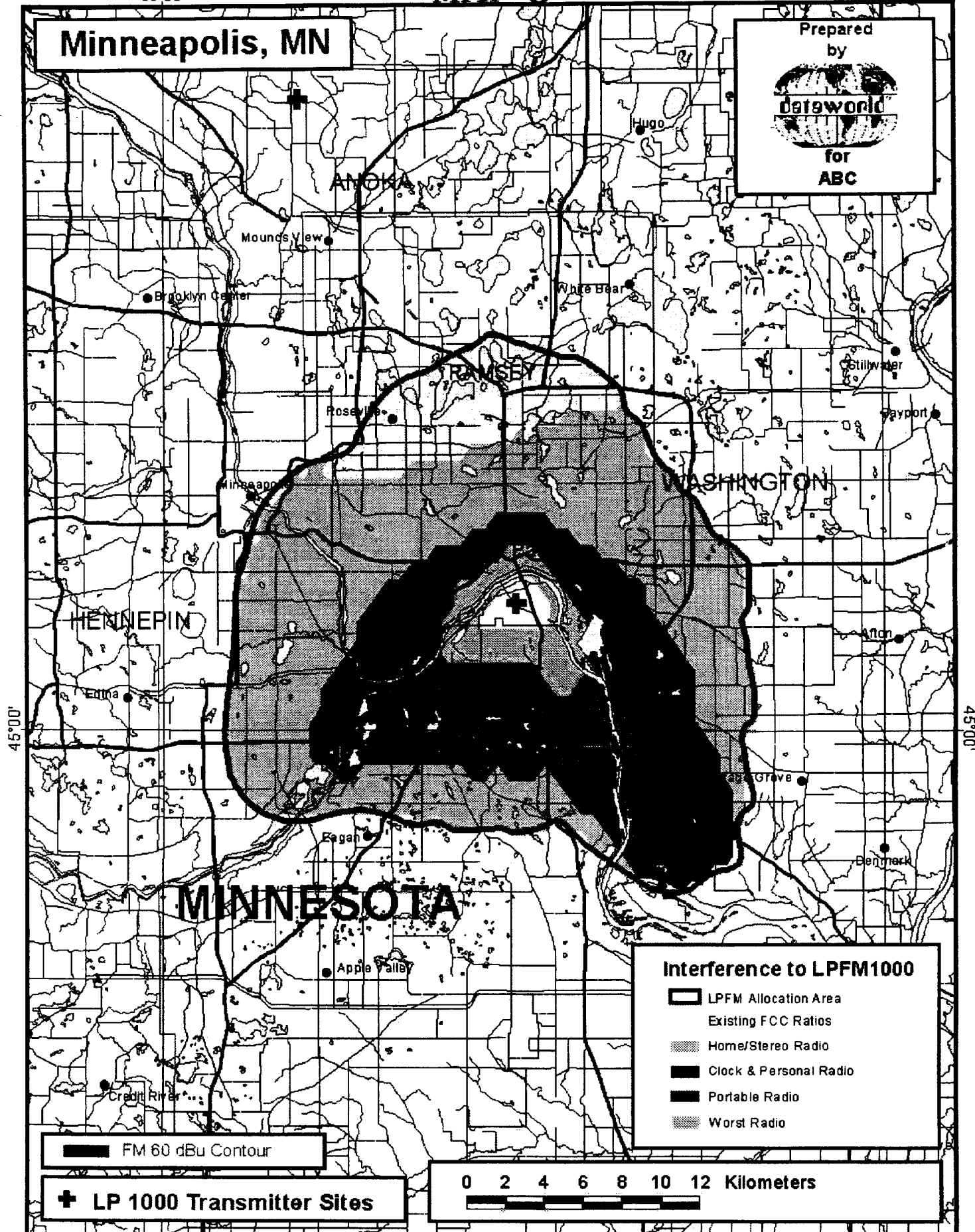
93°30'

MAP 3

93°00'

Minneapolis, MN

Prepared
by
dataworld
for
ABC



Interference to LPFM1000

- LPFM Allocation Area
- Existing FCC Ratios
- Home/Stereo Radio
- Clock & Personal Radio
- Portable Radio
- Worst Radio

FM 60 dBu Contour

+ LP 1000 Transmitter Sites

0 2 4 6 8 10 12 Kilometers

Copyright © 1999, Dataworld, Inc.

93°00'

Interference To LP1000 92.9 #1

93°30'

MAP 4

93°00'

Minneapolis, MN

Prepared
byfor
ABC

45°00'

45°00'

MINNESOTA

FM 60 dBu Contour

+ LP 100 Transmitter Sites

0 4 8 12 Kilometers

Interference to LPFM100

- LPFM Allocation Area
- Existing FCC Ratios
- Home/Stereo Radio
- Clock & Personal Radio
- Portable Radio
- Worst Radio

Copyright © 1999, Dataworld, Inc.

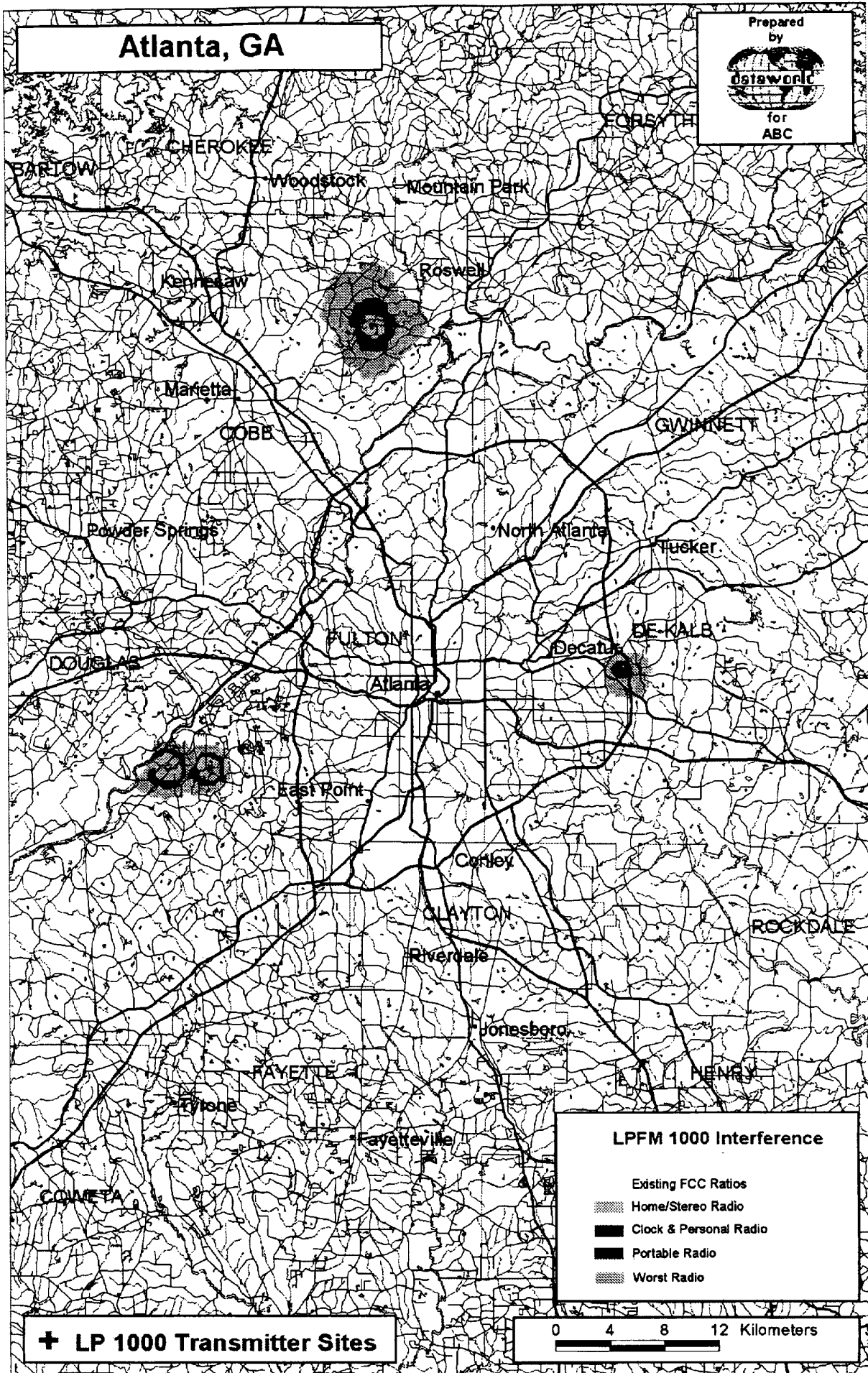
93°00'

Interference To LP100 91.9 #1

Atlanta, GA

Prepared by

 for
 ABC



✚ LP 1000 Transmitter Sites

LPFM 1000 Interference

Existing FCC Ratios

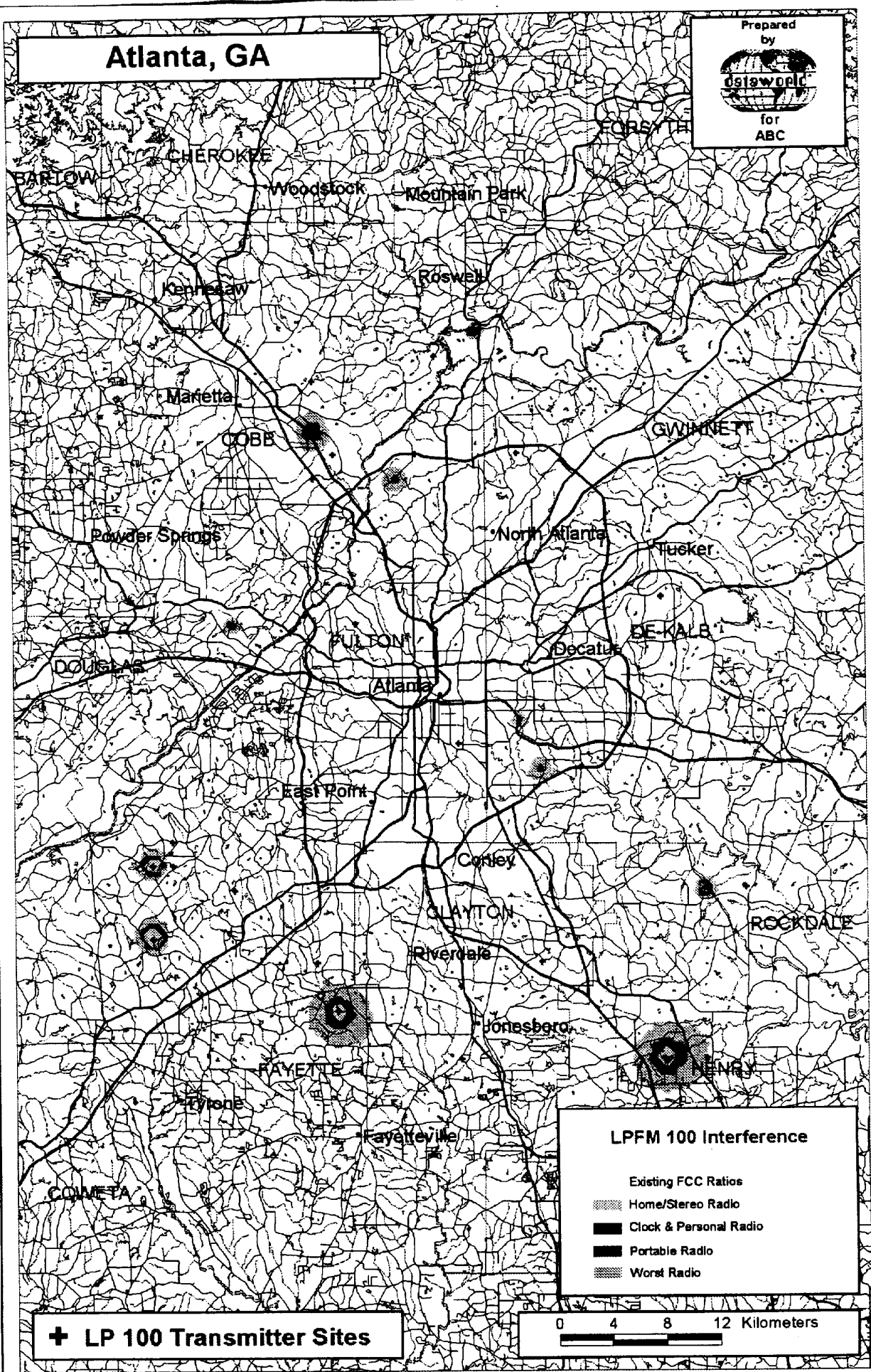
Home/Stereo Radio

Clock & Personal Radio

Portable Radio

Worst Radio

0 4 8 12 Kilometers



Interference To WKHX From LP100'S

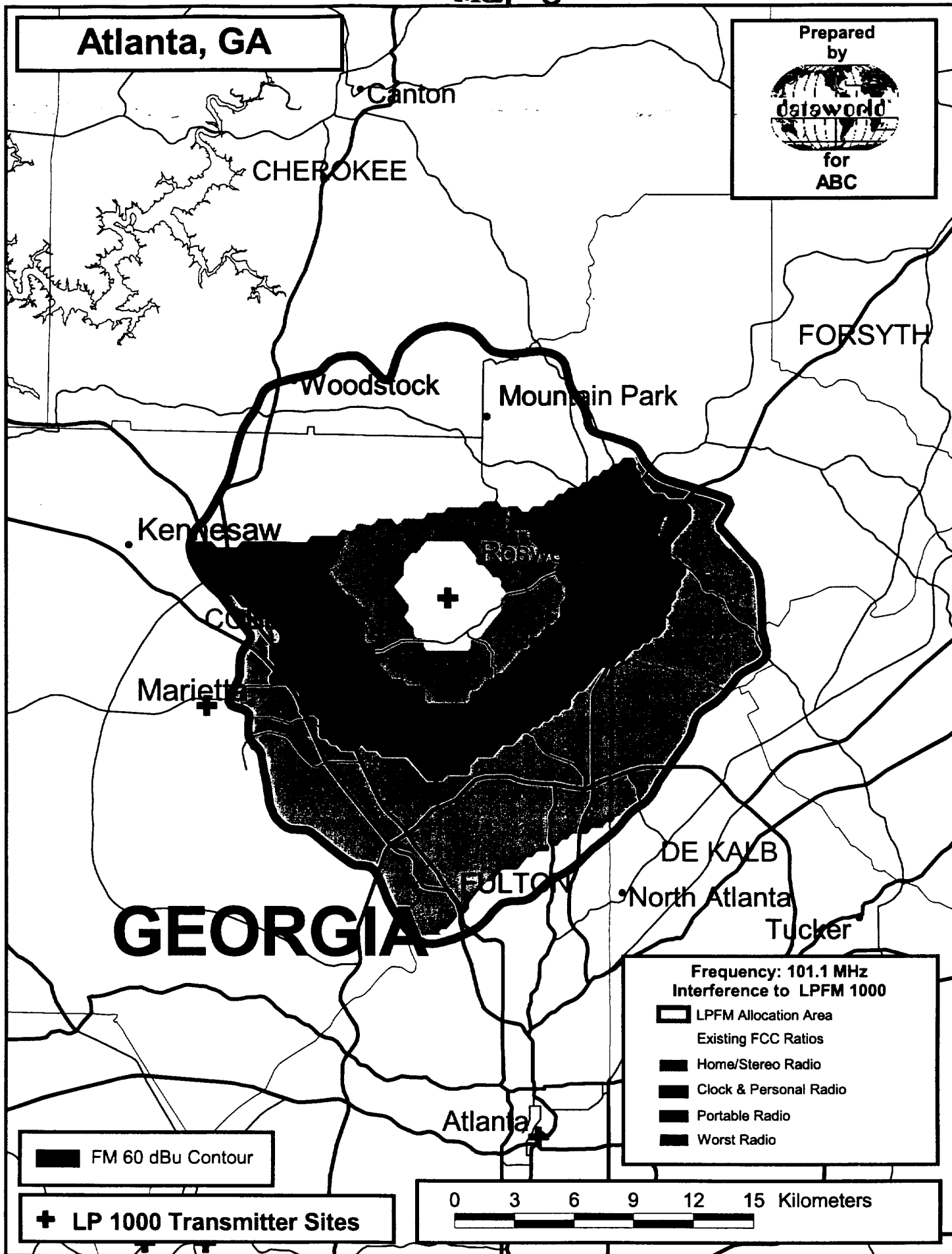
Map 6

Atlanta, GA

Prepared by



for
ABC

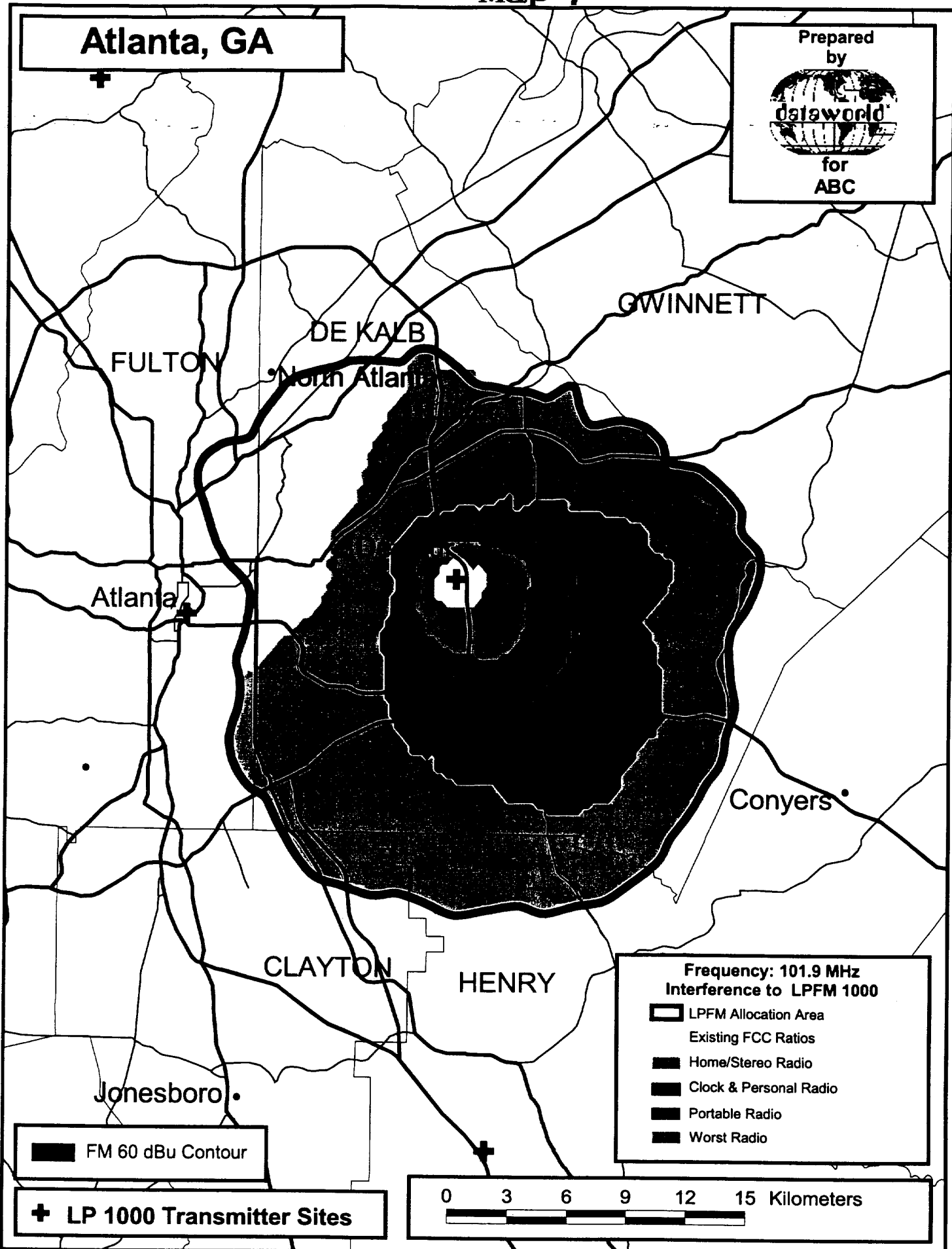


Map 7

Atlanta, GA

Prepared by

 for
ABC



Interference To LP1000 101.9 #1

Atlanta, GA

Prepared by



for
ABC

Kennesaw

Roswell

COBB

Marietta

FULTON

GEORGIA

Frequency: 101.1 MHz
Interference to LPFM 100

- LPFM Allocation Area
- Existing FCC Ratios
- Home/Stereo Radio
- Clock & Personal Radio
- Portable Radio
- Worst Radio

FM 60 dBu Contour

LP 100 Transmitter Sites

0 3 6 9 Kilometers

Prepared
by
619WCP
for
ABC

